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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,130	02/19/2004	Pranabes K. Pramanik	OM-11	5237

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EXAMINER

KRUE, KEVIN R

ART UNIT PAPER NUMBER

1773

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/782,130

Applicant(s)

PRAMANIK, PRANABES K.

Examiner

Kevin R. Kruer

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 34-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-33 and 37-47 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/19/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-33 and 37-47, drawn to a capacitor, classified in class 428, subclass 615+.
 - II. Claims 34-36, drawn to a method of making a capacitor, classified in class 427, subclass 331+.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product could be made by a materially different process. For example, the multilayered construction may be formed by applying the central layer to the first and second thermosetting polymers, then applying the electrically conductive layers.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Richard Roberts on August 15, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-33 and 37-47. Affirmation of this election must be made by applicant in

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replying to this Office action. Claims 34-36 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

5. The information disclosure statement filed 2/19/2004 has been fully considered. An initialed copy of said IDS is included herein.

Drawings

6. The drawings filed February 19, 2004 are accepted.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-7, 10-14, 16, 18-24, 28-33, 37-43, 45, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Appelt et al (US 2001/0005394A1).

Appelt teaches a capacitive element for a circuit board having improved capacitance. The structure is formed from a pair of conductive sheets having dielectric compound laminated therebetween. The dielectric component is formed of two or more dielectric sheets at least one of which is partially cured or softened followed by being fully cured or hardened. The lamination takes place by laminating a partially cured or softened sheet to at least one other sheet of dielectric material and one of the sheets of conductive material. The total thickness of the dielectric component does not exceed 4mil and preferably does not exceed 3mil (abstract) and the thickness of a single

dielectric sheet does not exceed 2mils, preferably no more than 1.5mil (abstract). Said thickness teachings are herein understood to be sufficiently specific to read on the claimed thicknesses of claims 18-23.

In one embodiment, a sheet of polyimide is coated on each side with a layer of epoxy to form a dielectric component (paragraph 0028). Said layers may comprise a filler such as barium titanate in order to increase its dielectric constant (0030). The conductive layers may comprise copper (0028). Said capacitor has a capacitance of at least 500 pico farads per square inch (0029).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 8, 9, 25, 44, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Appelt et al (US 2001/0005394A1), as applied to claims 1-7, 10-14, 16, 18-24, 38-33, 37-43, 45, and 47.

Appelt is relied upon as above. Specifically, Appelt teaches that the dielectric layers may comprise a filler material in order to control the dielectric component of the capacitor, but does not teach the amount of filler that should be added. However, the courts have held it is not inventive to discover the optimum or workable range by routine experimentation when the general conditions of the claimed invention are disclosed in the prior art (See MPEP 2141.05). Thus, it would have been obvious to one of ordinary

skill in the art at the time the invention was made to vary the amount of filler added to the dielectric component of the capacitor. The motivation for doing so would have been to optimize the dielectric constant of the dielectric component.

11. Claims 15, 17, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Appelt et al (US 2001/0005394A1), as applied to claims 1-7, 10-14, 16, 18-24, 38-33, 37-43, 45, and 47, and further in view of Fenoglio et al (US 5,003,037).

Appelt is relied upon as above, but does not teach that the core layer should comprise a polyamide-imide. However, Fenoglio teaches a polyamide-imide that has a high Tg (preferably above 300C), excellent thermal stability, lower density and lower moisture uptake and is useful in the electronic industry as an interlevel dielectric for capacitors (abstract). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the polyamide-imide taught in Fenoglio in place of the polyimide core layer taught in Appelt. The motivation for doing so would have been that said polymer has a high Tg, excellent thermal stability, lower density, and lower moisture uptake.

With regard to claim 26, Appelt does not teach the epoxy should have a Tg of at least 180C. However, Fenoglio teaches it is desirable for the dielectrics of capacitors to have a high Tg (see background of the invention). Thus, it would have been obvious to utilize an epoxy with a high Tg as the thermosetting resin taught in Appelt. The motivation for doing so is that such polymers are preferable for use in capacitors.

Alternatively, since epoxy is taught to be a thermosetting composition, it is understood to inherently meet the limitation of claim 26.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin R. Kruer
Patent Examiner-Art Unit 1773